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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *15 December 2008*.
2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-20* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-20* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
        1. ☐ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

This Office Action has been issued in response to amendment filed 15 December 2008. Applicant's arguments have been carefully and fully considered but they are not persuasive. Accordingly, this action has been made FINAL.

Claim Status

Claims 1-20 remain pending and are ready for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims **1, 2, and 4-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Chrisop et al (U.S. Patent Application Publication 2003/0043638), hereinafter referred to as Chrisop, and in view of Brady et al (U.S. 5,784,698), hereinafter referred to as Brady.

As per independent claim **1**, Chrisop teach,

- o determining mode of operation of the multiple function integrated circuit; (Paragraph 0023) *The Examiner notes that the system allocates RAM in response to prompts that correspond to a selected operation within the system.*

- o identifying at least one active module of a plurality of modules of the

    multiple function integrated circuit requiring a buffer based on the mode of

    operation; (Paragraph 0023) *The Examiner notes that as discussed supra,*

    the system allocates memory for a specific device within the multifunction

    peripheral device. Accordingly, the system of Chrisop identifies an active

    module from the multifunction peripheral device that requires memory to

    operate.

Chrisop does not explicitly teach, allocation of memory based on buffer

requirements.

Brady teaches,

- o determining buffer requirements for the at least one active module; and

    allocating memory space of the shared memory within the multiple

    function integrated circuit to the at least one active module based on the

    buffer requirements (Column 2 line 57 to Column 3 line 6).

Chrisop and Brady are analogous art because they are from the same field of

endeavor namely, memory systems.

At the time of invention, it would have been obvious to one of ordinary skill in the

art, having both the teachings of Chrisop and Brady before him/her to combine the

memory allocation method of Brady with Chrisop for the benefit of reduced memory

fragmentation.

The suggestion for doing so would have been that, use of the Selection size

parameter enables the amount of fragmented buffer space to be minimized by

modifying the buffer selection criteria so that if a last buffer required to satisfy a

requested buffer space allocation is only partially used, then several smaller buffers are

selected instead (Column 5 lines 31-36 as well as Column 2 lines 38-41 of Brady).

Therefore, it would have been obvious to combine Chrisop with Brady for the

benefit of reduced memory fragmentation to obtain the invention as specified in claims

1-20.

As per dependent claim **2**, the combination of Chrisop and Brady teach, wherein

the at least one active module comprises at least two of: a processing unit; universal

serial bus (USB) device; digital to analog converter (DAC); and analog to digital

converter (ADC) (Paragraph 0029 of Chrisop). *The Examiner notes that, for example,*

the fax machine can be the device selected as the active module. This being the case,

the fax machine contains a processing unit inside of it in addition to both a digital to

analog converter that converts documents before sending over an analog

communication medium as well as an analog to digital converter that converts incoming

analog transmissions to digital documents. The same applies for a scanner and or a

copier but the DAC and ADC have different inputs and outputs and outputs.

As per dependent claim **4**, the combination of Chrisop and Brady teach,

- o determining a change in the mode of operation of the multiple function

  integrated circuit to a second mode of operation; (Paragraph 0023 of

  Chrisop). *The Examiner notes that the system allocates RAM in response*

  to prompts that correspond to a selected operation within the system.

- o identifying at least one other active module of the plurality of modules requiring another buffer based on the second mode of operation; (Paragraph 0023 of Chrisop). *The Examiner notes that as discussed supra, the system allocates memory for a specific device within the multifunction peripheral device. Accordingly, the system of Chrisop identifies an active module from the multifunction peripheral device that requires memory to operate. As taught in Paragraph 0029 of Chrisop, the system is able to allocate multiple areas of the RAM to different functions of the system.*

- o in response to determining the change in the mode of operation, determining buffer requirements for the at least one other active module; and allocating memory space of the shared memory for the another buffer to be used by the at least one other active module based on the buffer requirements for the at least one other active module (Column 2 line 57 to Column 3 line 6 of Brady).

- o *Further as taught in Paragraph 0035 of Chrisop, memory is allocated to components which have a higher priority when memory contention issues arise. Thus Chrisop teach a change in mode of operation in that memory contention issues arise based on the components that are operating.*

As per dependent claim **5**, the combination of Chrisop and Brady teach, wherein the at least one active module has digital memory access (DMA) to the shared memory

(Paragraph 0023 of Chrisop). *The Examiner notes that the MFP system of Christop has access to digital RAM.*

As per dependent claim **6**, the combination of Chrisop and Brady teach, wherein the shared memory comprises on-chip random access memory (Paragraph 0029 of Chrisop). *The Examiner notes that the RAM is shown as on-chip RAM in figure 1 item 106.*

As per independent claim **7**, the combination of Chrisop and Brady teach,

- o determining a first mode of operation of the multiple function integrated circuit; (Paragraph 0023 of Chrisop) *The Examiner notes that the system allocates RAM in response to prompts that correspond to a selected operation within the system.*

- o identifying at least one active module of a plurality of modules of the multiple function integrated circuit requiring a buffer based on the first mode of operation; (Paragraph 0023 of Chrisop). *The Examiner notes that as discussed supra, the system allocates memory for a specific device within the multifunction peripheral device. Accordingly, the system of Chrisop identifies an active module from the multifunction peripheral device that requires memory to operate.*

- o determining buffer requirements for the at least one active module; and allocating, based on the buffer requirements, memory space of the shared memory for a buffer to be used by the at least one active module (Column 2 line 57 to Column 3 line 6 of Brady).

    ○ *Further as taught in Paragraph 0035 of Chrisop, memory is allocated to components which have a higher priority when memory contention issues arise. Thus Chrisop teach a change in mode of operation in that memory contention issues arise based on the components that are operating.*

As per dependent claim **8**, the combination of Chrisop and Brady teach, detecting activation of the multiple function integrated circuit; and wherein determining buffer requirements comprises determining buffer requirements in response to detecting activation of the multiple function integrated circuit (Paragraph 0023 of Chrisop in addition to Column 2 line 57 to Column 3 line 6 of Brady).

As per dependent claim **9**, the combination of Chrisop and Brady teach,

    ○ detecting a change from the first mode of operation of the multiple function integrated circuit to a second mode of operation; (Paragraph 0023 of Chrisop). *The Examiner notes that the system allocates RAM in response to prompts that correspond to a selected operation within the system.*

    ○ identifying at least one other active module of the plurality of modules of the multiple function integrated circuit requiring a buffer based on the second mode of operation; (Paragraph 0023 of Chrisop). *The Examiner notes that as discussed supra, the system allocates memory for a specific device within the multifunction peripheral device. Accordingly, the system of Chrisop identifies an active module from the multifunction peripheral device that requires memory to operate. As taught in Paragraph 0029 of*

Chrisop, the system is able to allocate multiple areas of the RAM to

different functions of the system.

- o determining buffer requirements for the at least one other active module in response to detecting the change from the first mode of operation; and allocating memory space of the shared memory for a buffer to be used by the at least one other active module in response to detecting the change from the first mode of operation (Column 2 line 57 to Column 3 line 6 of Brady).

As per dependent claim **10**, the combination of Chrisop and Brady teach, wherein the at least one active module comprises: a processing unit; universal serial bus (USB) device; digital to analog converter (DAC); and analog to digital converter (ADC) (Paragraph 0029 of Chrisop). *The Examiner notes that, for example, the fax machine can be the device selected as the active module. This being the case, the fax machine contains a processing unit inside of it in addition to both a digital to analog converter that converts documents before sending over an analog communication medium as well as an analog to digital converter that converts incoming analog transmissions to digital documents. The same applies for a scanner and or a copier but the DAC and ADC have different inputs and outputs.*

As per dependent claim **11**, the combination of Chrisop and Brady teach, wherein the first mode of operation and second mode of operation comprise at least one mode of operation selected from: a digital audio player mode; a file storage device mode; a digital multimedia player mode; an extended memory device mode; a digital audio

recorder mode; a digital multimedia recorder mode; and a personal data assistant

(Paragraph 0023 of Chrisop). *The Examiner notes that as taught by Chrisop, the "RAM*

is allocated to the temporary storage of documents." Accordingly the system of Chrisop

is acting as a file storage device.

As per dependent claim **12**, the combination of Chrisop and Brady teach, wherein

the at least one active module has digital memory access (DMA) to the shared memory

(Paragraph 0023 of Chrisop). *The Examiner notes that the MFP system of Christop has*

access to digital RAM.

As per dependent claim **13**, the combination of Chrisop and Brady teach, wherein

the shared memory comprises on-chip random access memory (Paragraph 0029 of

Chrisop). *The Examiner notes that the RAM is shown as on-chip RAM in figure 1 item*

106.

As per independent claim **14**, the combination of Chrisop and Brady teach,

- o   processing module; and (Figure 1 - allocator of Chrisop)

- o   memory operably coupled to the processing module, wherein the memory

     and processing module are within a single multiple function integrated

     circuit, wherein at least portion of the memory functions as the shared

     memory and wherein the memory stores operational instructions that

     cause the processing module to: detect activation of the multiple function

     integrated circuit; (Figure 1 item 120 of Chrisop)

- o   determine a first mode of operation of the multiple function integrated

     circuit; (Paragraph 0023 of Chrisop). *The Examiner notes that the system*

allocates RAM in response to prompts that correspond to a selected operation within the system.

- o identify at least one active modules of the multiple function integrated circuit requiring a buffer based on the first mode of operation; (Paragraph 0023 of Chrisop). *The Examiner notes that as discussed supra, the system allocates memory for a specific device within the multifunction peripheral device. Accordingly, the system of Chrisop identifies an active module from the multifunction peripheral device that requires memory to operate.*

- o determine buffer requirements for the at least one active module; and allocate, based on the buffer requirements memory space within the RAM for a buffer to be used by the at least one active module (Column 2 line 57 to Column 3 line 6 of Brady).

As per dependent claim **15**, the combination of Chrisop and Brady teach,

- o detect a change from the first mode of operation of the multiple function integrated circuit to a second mode of operation; (Paragraph 0023 of Chrisop). *The Examiner notes that the system allocates RAM in response to prompts that correspond to a selected operation within the system.*

- o identify at least one active module of the plurality of modules of the multiple function integrated circuit requiring a buffer based on the second mode of operation; (Paragraph 0023 of Chrisop). *The Examiner notes that as discussed supra, the system allocates memory for a specific*

device within the multifunction peripheral device. Accordingly, the system

of Chrisop identifies an active module from the multifunction peripheral

device that requires memory to operate. As taught in Paragraph 0029 of

Chrisop, the system is able to allocate multiple areas of the RAM to

different functions of the system.

- o determine buffer requirements for the at least one active module; and

  allocate memory space of the shared memory for a buffer to be used by

  the at least one active module (Column 2 line 57 to Column 3 line 6 of

  Brady).

As per dependent claim **16**, the combination of Chrisop and Brady teach, wherein

the at least one active module further comprises at least one of: universal serial bus

(USB) device; a flash memory device; an electronically programmable read only

memory (EPROM) device; a multi-wire device; a hard drive device; digital to analog

converter (DAC); and analog to digital converter (ADC) (Paragraph 0024 of Chrisop).

The Examiner incorporates by reference herein the comments made supra with respect

to claim 1 and the fax machine.

As per dependent claim **17**, the combination of Chrisop and Brady teach, wherein

the first mode of operation and second mode of operation comprise at least one mode

of operation selected from: a digital audio player mode; a file storage device mode; a

digital multimedia player mode; an extended memory device mode; a digital audio

recorder mode; a digital multimedia recorder mode; and a personal data assistant

(Paragraph 0023 of Chrisop). *The Examiner notes that as taught by Chrisop, the "RAM*

is allocated to the temporary storage of documents." Accordingly the system of Chrisop is acting as a file storage device.

As per dependent claim **18**, the combination of Chrisop and Brady teach, wherein the at least one active module has digital memory access (DMA) to the shared memory (Paragraph 0023 of Chrisop). *The Examiner notes that the MFP system of Christop has access to digital RAM.*

As per dependent claim **19**, the combination of Chrisop and Brady teach, wherein the processing module determines the first mode of operation from initialization inputs to the multiple function integrated circuit, wherein the initialization inputs identify active modules operable coupled to the multiple function integrated circuit (Paragraph 0023-0025 of Chrisop). *The Examiner incorporates by reference herein the comments made supra with respect to claim 1.*

As per dependent claim **20**, the combination of Chrisop and Brady teach, wherein the active modules include at least one of: universal serial bus (USB) device; a flash memory device; an electronically programmable read only memory (EPROM) device; a multi-wire device; a hard drive device; digital to analog converter (DAC); and analog to digital converter (ADC) (Paragraph 0024 of Chrisop). *The Examiner incorporates by reference herein the comments made supra with respect to claim 1 and the fax machine.*

Claim **3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Chrisop and in view of Brady and further in view of Applicant's admitted prior art, hereinafter referred to as AAPA.

As per dependent claim **3**, the combination of Chrisop and Brady teach the limitations as noted supra.

The combination of Chrisop and Brady does not explicitly teach, a digital audio player mode; a digital multimedia player mode; an extended memory device mode; a digital audio recorder mode; a digital multimedia recorder mode; and a personal data assistant.

AAPA teaches, a personal data assistant (Paragraph 0005).

The combination of Chrisop and Brady and AAPA are analogous art because they are from the same field of endeavor namely, memory allocation systems.

At the time of invention, it would have been obvious to one of ordinary skill in the art, having both the teachings of the combination of Chrisop and Brady, and AAPA before him/her to combine the PDA functionality taught within the AAPA with the combination of Chrisop and Brady for the benefit of scheduling and having an address book.

As the system taught from the combination of Chrisop and Brady is a MFP with many capabilities that include faxing, having the benefit offered by the functionality and features of a PDA or personal data assistant integrated within the system would have enabled users of the system increased capability. For instance, by integrating the features of the PDA, one user would have numbers from the address book available for usage with the functionality of the fax machine. Thus, such combination would have yielded predictable results to one of ordinary skill in the art at the time of invention.

Therefore, it would have been obvious to combine the combination of Chrisop

and Brady with AAPA for the PDA functionality to obtain the invention as specified in

claim 3.

Response to Arguments

Applicant's arguments filed 15 December 2008 have been carefully and fully

considered but they are not persuasive.

With respect to Applicant's argument located within the third paragraph of the

first page of the instant remarks (numbered as page 7) which recites:

> *"There is no disclosure in Brady that the request is associated with buffer*
> *requirements for an active module of a plurality of modules of a multiple function*
> *integrated circuit in any manner."*

The Examiner respectfully disagrees. As taught in Brady, Column 2 lines 57 to

62, the buffer is allocated in response to a request. The size of the buffer that is chosen

for allocation is determined by selecting the buffer that is of the next larger size. Brady

thusly teaches that a determination is made on the buffer to be allocated in response to

the request. Further, the Examiner notes that it is the combination of Chrisop and Brady

that teach that which is instantly claimed. Thus, when Brady is combined with Chrisop,

the requests for memory allocation are based on requirements for an active module of a

plurality of modules of a multiple function integrated circuit as taught in Chrisop. In

response to Applicant's arguments against the references individually, one cannot show

nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA

1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

With respect to Applicant's argument located within the third paragraph of the

second page of the instant remarks (numbered as page 8) which recites:

> *"Claim 4 has been amended to recite "in response to determining the change in*
> *the mode of operation, determining buffer requirements for the at least one other*
> *active module." Neither of the cited references discloses or renders obvious*
> *determining buffer requirements in response to determining a change in a mode*
> *of operation."*

The Examiner respectfully disagrees. As taught in Chrisop, Paragraph 0035,

priorities may be assigned to various components of the system such that when

memory contentions arise, the component with a higher priority will have precedence for

memory. Thus, multiple functions can operate within the system of Chrisop and

Chrisop, with the combination of the teachings of Brady, will determine the requirements

for other modules as they begin to operate and potentially give priority to that function

with respect to memory should the need arise.

With respect to Applicant's argument located within the last paragraph of the

second page of the instant remarks (numbered as page 8) which recites:

> *"In addition, one skilled in the art would not combine the references as proposed*
> *because doing so would render Chrisop unsuitable for its intended purpose. See*
> *MPEP, § 2143.01. … In other words, the proposed combination of Chrisop and*
> *Brady would result in a system whereby more buffer space than was specifically*
> *requested by a user would be allocated to a particular component. Such a*
> *system would not satisfy the express purpose of Chrisop."*

The Examiner respectfully disagrees. In response to Applicant's argument that

there is no suggestion to combine the references, the Examiner recognizes that

obviousness can only be established by combining or modifying the teachings of the

prior art to produce the claimed invention where there is some teaching, suggestion, or

motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed.

Cir. 1992). In this case, the Applicant alleges that the combination of Brady and

Chrisop would result in a system whereby more buffer space than was specifically

requested by a user would be allocated to a particular component. The Examiner notes

that Chrisop teaches that the allocator operates within predetermined ranges to limit

each RAM allocation (Paragraph 0028). Thus, Chrisop teaches that there is some

range that is prescribed for each allocation. Brady teaches that in response to a

request, a buffer is allocated based on buffer requirements (Column 2 lines 57-62)

whereby the buffer selected is the next larger size. The Examiner notes further that the

combination of Chrisop with Brady would enable Chrisop to more effectively select the

ranges to be used for allocation as the ranges would be supplied from the buffer sizes

of Brady. This is in addition to the benefit as noted in the 35 U.S.C. 103(a) rejection

noted *supra*.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Matthew Bradley whose telephone number is (571) 272-

8575. The examiner can normally be reached on 6:30-3:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kevin Ellis can be reached on (571) 272-4205. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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published applications may be obtained from either Private PAIR or Public PAIR.

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KLE/mb

/Kevin L Ellis/
Acting SPE of Art Unit 2187